

**Effect of soil pollution on substructures**  
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**Abstract:** The effect of chloride-sulphate solutions, simulating soils contaminated by chemical effluents, on mortar specimens made from different types of cements was investigated. Experiments on three types of plain cements (Type I, Type V, and a mixture of Types I and V cements) and blended cements with fly ash, microsilica, and blast-furnace slag were conducted. The results indicated that in soils and ground water contaminated with high concentrations of chloride, Type I cement blended with microsilica should be used. However, in soils contaminated with high chloride plus medium sulphate concentrations, Type I cement is suitable. In the environments characterized by low chloride plus medium sulphate concentrations, Type V is recommended. The recommendations were based on the least reduction in compressive strength within one year of exposure relative to the strength of the reference (i.e. chemical free solutions). The results were statistically analysed and found to be significant.